

In the Claims

Please amend the claims as follows:

1. (Previously presented) Method for continuously manufacturing EL lamp material comprising the steps of:

providing a front electrode laminate comprising the steps of:

providing a continuous coil of indium tin oxide coated polyester (ITO/PET) film;

applying an organic binder to the indium tin oxide (ITO) surface of the ITO/PET film by means of a roller, and

depositing a mono-layer of phosphor particulate onto the organic binder defining a front electrode laminate;

providing a rear electrode laminate comprising the steps of:

providing a continuous coil of an aluminum foil polyester film, and

applying a layer of barium titanate to the aluminum foil surface of the aluminum foil polyester film defining a rear electrode laminate;

continuously joining said front electrode laminate and said rear electrode laminate with said organic binder phosphor particulate layer facing said barium titanate layer to produce a continuous roll of EL lamp laminate material having an ITO front electrode and an aluminum foil rear electrode.

2. (Previously presented) The method as defined in claim 1, wherein the step of providing a front electrode laminate includes the steps of:

applying an organic binder comprising a UV-curable organic binder to the ITO surface of the ITO/PET film;

electrostatically depositing a mono-layer of phosphor particulate on the UV-curable organic binder surface wherein the phosphor particulate is partially embedded in the organic binder; and

setting the thickness of the UV-curable organic binder phosphor particulate layer to a predetermined desired thickness.

3. (Previously presented) The method as defined in claim 2, further including the step of curing the UV-curable organic binder phosphor particulate layer prior to the step of laminating the front and rear electrode laminates.

4. (Original) The method as defined in claim 2, further including the step of partially curing the UV-curable organic binder phosphor particulate layer prior to setting the thickness of the layer.

5. (Previously presented) The method as defined in claim 1, wherein the step of providing a front electrode laminate includes the steps of:

applying a slurry mixture of a UV-curable organic binder and phosphor particulate to the ITO surface of the ITO/PET film; and

setting the thickness of the UV-curable organic binder and phosphor particulate layer to a predetermined desired thickness.

6. (Previously presented) The method as defined in claim 5, further including the step of curing the UV-curable organic binder phosphor particulate layer prior to the step of laminating the front and rear electrode laminates.

7. (Previously presented) The method as defined in claim 5, further including the step of curing the UV-curable organic binder phosphor particulate layer after the step of laminating the front and rear electrode laminates.

8. (Previously presented) The method as defined in claim 1, wherein the step of continuously joining said front and rear electrode laminates further includes embedding exposed

portions of the phosphor particulate extending beyond the surface of the organic binder in the barium titanate layer.

9. (Previously presented) The method as defined in claim 1, wherein the step of continuously joining said front and rear electrode laminates further includes setting the thickness of the EL lamp laminate material to a predetermined desired thickness.

10. (Previously presented) The method as defined in claim 1, wherein the step of providing a front electrode laminate includes the steps of:

- applying a thermoplastic clear organic binder to the ITO surface of the ITO/PET film;
- setting the thickness of the thermoplastic clear organic binder layer to a predetermined desired thickness;

- warming the thermoplastic organic binder layer to soften it;
- electrostatically depositing a mono-layer of phosphor particulate on the softened thermoplastic organic binder surface; and

- chilling the thermoplastic organic binder phosphor particulate layer to firm it prior to the step of joining the front and rear electrode laminates.

11. (Previously presented) Apparatus for continuously manufacturing electroluminescent (EL) lamp material comprising:

- a first roller for applying an organic binder to the indium tin oxide (ITO) surface of a continuous coil of an indium tin oxide polyester (ITO/PET) film;

- a phosphor particulate deposition station for depositing a mono-layer of phosphor particulate on said organic binder, said phosphor particulate organic binder coated ITO/PET film defining a front electrode laminate;

- a second roller for applying a barium titanate layer to the aluminum foil surface of a continuous coil of an aluminum foil polyester film, said barium titanate coated aluminum foil polyester film defining a rear electrode laminate; and

a laminating nip for joining said front electrode laminate and said rear electrode laminate passing through said nip with said organic binder phosphor particulate layer facing said barium titanate layer to produce a continuous roll of EL lamp laminate material having an ITO front electrode and an aluminum foil rear electrode.

12. (Previously presented) The apparatus as defined in claim 11, wherein said first roller further comprises a gravure roller for applying the organic binder layer to the ITO surface.

13. (Previously presented) The apparatus as defined in claim 11, wherein said first roller applies a UV-curable organic binder layer to the ITO surface.

14. (Previously presented) The apparatus as defined in claim 13, wherein said phosphor particulate deposition station further comprises a phosphor particulate deposition station electrostatic depositing means.

15. (Previously presented) The apparatus as defined in claim 11, further including a calender roll for setting the thickness of said front electrode laminate to a predetermined desired thickness.

16. (Previously presented) The apparatus as defined in claim 11, wherein said first roller further comprises a knife-over-roll apparatus for applying a slurry mixture of a UV-curable organic binder and phosphor particulate to the ITO surface of the ITO/PET film.

17. (Previously presented) The apparatus as defined in claim 13, further including a UV-organic binder curing station located prior to said laminating nip.

18. (Previously presented) The apparatus as defined in claim 13, further including a UV-organic binder curing station located after said laminating nip.

19. (Previously presented) The apparatus as defined in claim 11, wherein said laminating nip comprises a pressure-nip laminator.
20. (Previously presented) The apparatus as defined in claim 11, wherein said laminating nip comprises a heated-nip laminator.
21. (Previously presented) Method for continuously manufacturing electroluminescent (EL) lamp material comprising the steps of:
 - providing a front electrode laminate comprising the steps of:
 - providing a continuous roll of an indium tin oxide coated polyester (ITO/PET) film of indeterminate length and width;
 - applying a UV-curable organic binder to the indium tin oxide (ITO) surface of the ITO/PET film by means of a roller;
 - depositing a mono-layer of phosphor particulate onto the UV-curable organic binder layer;
 - partially curing the phosphor particulate deposited UV-curable organic binder layer;
 - setting the UV-curable organic binder phosphor particulate layer to a predetermined desired thickness; and
 - curing the UV-curable organic binder phosphor particulate layer;
 - providing a rear electrode laminate comprising the steps of:
 - providing a continuous roll of an aluminum foil polyester film of indeterminate length and having a width substantially equal to the width of the ITO/PET film;
 - applying a layer of barium titanate to the aluminum foil surface of the aluminum foil polyester; and
 - continuously joining said front electrode laminate and said rear electrode laminate with said organic binder phosphor particulate layer facing said barium titanate layer to produce a continuous roll of EL lamp laminate material having an ITO front electrode and an aluminum foil rear electrode.

22. (Previously presented) The method as defined in claim 21, further including the step of removing foreign matter from the indium tin oxide (ITO) surface prior to applying the UV-curable organic binder layer.
23. (Previously presented) The method as defined in claim 21, wherein the step of the UV-curable organic binder further includes applying the UV-curable organic binder using a direct gravure roller.
24. (Previously presented) The method as defined in claim 21, wherein the step of applying the UV-curable organic binder layer further includes applying the UV-curable organic binder using an indirect gravure roller.
25. (Previously presented) The method as defined in claim 21, wherein the step of applying the UV-curable organic binder further comprises applying the UV-curable organic binder in a thickness in the range of about 0.3 mils to 0.8 mils.
26. (Previously presented) The method as defined in claim 21, wherein the step of depositing a mono-layer of phosphor particulate further includes the step of electrostatically depositing phosphor particulate of like electrical polarity charge onto the surface of the UV-curable organic binder.
27. (Previously presented) The method as defined in claim 26, further including discharging the electrical charge from the phosphor particulate electrostatically deposited on the UV-curable organic binder surface.
28. (Previously presented) The method as defined in claim 26, wherein the step of depositing a mono-layer of phosphor particulate further includes depositing phosphor particulate having a microencapsulated inorganic coating.

29. (Original) The method as defined in claim 28, wherein the microencapsulated inorganic coating is aluminum oxide.
30. (Original) The method as defined in claim 28, wherein the microencapsulated inorganic coating is aluminum nitride.
31. (Previously presented) The method as defined in claim 21, wherein the step of setting the thickness of the UV-curable organic binder phosphor particulate layer further includes passing the partially cured organic binder phosphor particulate layer ITO/PET film through at least one calender roll.
32. (Previously presented) The method as defined in claim 31, further including the step of heating the calender roll to soften the partially cured UV-curable organic binder to more easily reposition the phosphor particulate.
33. (Previously presented) The method as defined in claim 21, wherein the step of applying the UV-curable organic binder further comprises applying a clear, UV-curable organic binder.
34. (Previously presented) The method as defined in claim 32, wherein the UV-curable organic binder is moisture resistant.
35. (Previously presented) The method as defined in claim 33, wherein the UV-curable organic binder has a dielectric constant in the range of about greater than 4, a dissipation factor in the range of about less than 0.125, and a dielectric strength in the range of about 1000 +/- 200 volts per mil.
36. (Previously presented) The method as defined in claim 21, wherein the step of continuously joining the front and rear electrode laminates further comprises passing the front and rear electrode laminates through a nip laminator.

37. (Original) The method as defined in claim 36, further comprising the step of heating the nip laminator.
38. (Original) The method as defined in claim 21, further comprising the steps of:
cutting the rear electrode laminate into at least one pair of parallel strips; and
continuously joining said front electrode laminate and said parallel strip pair of rear electrode laminate to produce a continuous roll of split-electrode EL lamp laminate material.
39. (Previously presented) The method as defined in claim 21, further comprising the steps of:
cutting the rear electrode laminate into at least two pairs of parallel strips;
continuously joining said front electrode laminate and said at least two pairs of parallel strips rear electrode laminate; and
cutting the continuously joined front and rear electrode laminate along a line defined by adjacent pairs of parallel strips of rear electrode laminate to produce continuous rolls of split-electrode EL lamp laminate material wherein each continuous roll corresponds to each pair of parallel rear electrode laminate strips.
40. (Presently presented) An electroluminescent (EL) lamp material comprising:
a front electrode laminate comprising:
a continuous coil of indium tin oxide coated polyester (ITO/PET) film;
-an organic binder layer on the indium tin oxide surface of said ITO/PET film, and
-a mono-layer of phosphor particulate on said organic binder layer;
a rear electrode laminate comprising:
-a continuous coil of an aluminum foil polyester film;
-a barium titanate layer on the aluminum foil surface of said aluminum foil polyester film; and

wherein said front electrode laminate and said rear electrode laminate are continuously joined with said organic binder phosphor particulate layer facing said barium titanate layer to form a continuous roll of EL lamp laminate material having an ITO front electrode and an aluminum foil rear electrode.

41. (Presently presented) The EL lamp material as defined in claim 40, wherein said organic binder is a UV-curable organic binder.

42. (Presently presented) The EL lamp material as defined in claim 40, wherein said EL lamp material further comprises said rear electrode being cut to a predetermined depth through said aluminum foil polyester film and partially into said barium titanate layer to produce at least two electrically isolated rear electrode areas defining a continuous roll of a split-electrode EL lamp.

43. (Presently presented) The EL lamp material as defined in claim 42, further comprising said rear electrode being cut to a predetermined depth through said aluminum foil polyester film and partially into said barium titanate layer to produce at least two electrically isolated rear electrodes of equal area defining a continuous roll of a split-electrode EL lamp wherein each area emits light of substantially equal brightness.

44. (Presently presented) The EL lamp material as defined in claim 42, further comprising said rear electrode being cut to a predetermined depth through said aluminum foil polyester film and partially into said barium titanate layer to produce at least two electrically isolated rear electrodes of unequal area defining a continuous roll of a split-electrode EL lamp wherein each area emits light of unequal brightness.

45. (Presently presented) The EL lamp material as defined in claim 42, further comprising said rear electrode having multiple cuts to a predetermined depth through said aluminum foil polyester film and partially into said barium titanate layer to produce multiple pairs of electrically

isolated rear electrode areas defining a continuous roll of a split-electrode EL lamp wherein light is emitted in the area of each pair of multiple pairs to produce special effect lighting.

46. (Original) The EL lamp material as defined in claim 42, further comprising each of said at least two electrically isolated rear electrode areas having an electrical connector in contact with said aluminum foil for powering the EL lamp.

47. (Previously presented) The EL lamp material as defined in claim 40, wherein said EL lamp material further comprises said laminate having dual scribe lines along a marginal peripheral region cut to predetermined depths through said laminate, wherein the first scribe line of said dual scribe lines is outward of the second scribe line of the dual scribe lines and is cut completely through said rear electrode laminate and said phosphor particle organic binder layer terminating at said indium tin oxide layer, and the second of said dual scribe lines cut to a predetermined depth through said aluminum foil polyester film and partially into said barium titanate layer to produce a parallel-plate EL lamp.

48. (Original) The EL lamp material as defined in claim 47, wherein the laminate region between the first scribe line and the laminate outer peripheral edge further includes an electrical connector through said laminate and in electrical contact with said indium tin oxide for powering said front electrode defining one plate of the parallel plate EL lamp.

49. (Original) The EL lamp material as defined in claim 47, wherein the laminate region between the second scribe line and the laminate outer peripheral edge opposite said laminate outer peripheral edge outward of said first scribe line further includes an electrical connector through said laminate and in electrical contact with said aluminum foil for powering said rear electrode defining the other plate of the parallel plate EL lamp.

50. (Original) The EL lamp material as defined in claim 47, further comprising said first scribe line being flooded with a conductive material.

51. (Previously presented) The EL lamp material as defined in claim 41 wherein said UV-curable organic binder phosphor particulate layer is set to a predetermined thickness.

52. (Previously presented) The EL lamp material as defined in claim 42 wherein said continuous roll of said split-electrode EL lamp material is cut to provide an EL lamp having a desired size and shape.

53. (Canceled)

54. (Canceled)

55. (Canceled)